FROM STOCK



TIME DELAY

- thermal
- electronic

ELECTROMAGNETIC

- general purpose
- latching
- economy

ILLUSTRATED IN THIS CATALOG ARE SELECTION CHARTS REPRESENTING A COMPLETE LINE OF ELECTRONIC AND THERMAL TIME DELAY RELAYS MANUFACTURED FOR BOTH INDUS-TRIAL AND MILITARY APPLICATIONS.

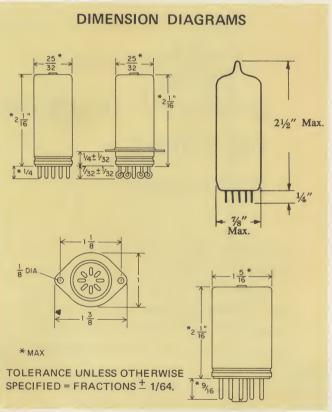


RELAY SPECIALTIES INC., FAIR LAWN, NEW JERSEY Specialists in Electronic and Thermal Time Delay Relays TELEPHONE (AREA CODE 201) 791-3208

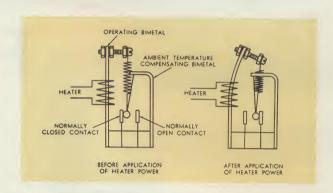
"snap action" THERMAL TIME DELAY RELAY

- LOW COST HERMETICALLY SEALED CHATTER FREE FROM STOCK
- OPERATES ON ENERGIZATION OPERATES AC OR DC ANY FREQUENCY
- UNAFFECTED BY VOLTAGE TRANSIENTS AMBIENT COMPENSATED -65 +85°C
- •TIME SETTING CAN BE PIN POINT ADJUSTED BY EXTERNAL POT

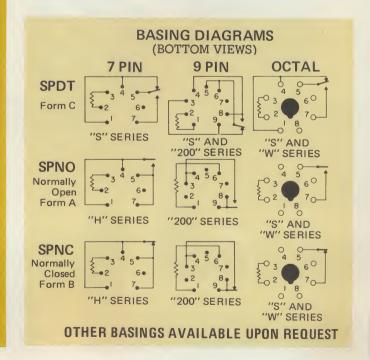
DESCRIPTION: New and critical applications of time delays are being filled by Thermal relays. Features include chatter-free, Single Pole Double Throw load contacts, fast reset, operates under conditions of temperature environments, vibration, shock, acceleration and altitude. The "Snapper" is a thermal time delay relay in which a bimetal element is heated by a separate controlling circuit to cause a mechanical deflection of the bimetal. A toggle Snap Action assembly is mechanically activated by the deflection.

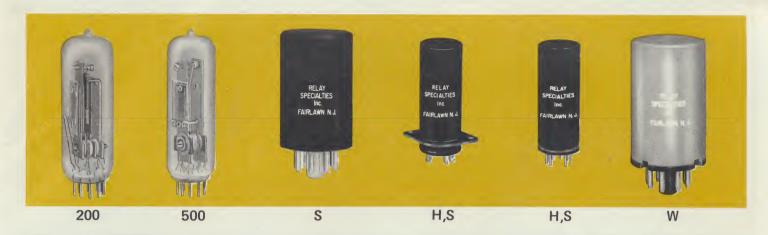






OPERATION OF THE "SNAPPER" RELAY: Snap Action switching has the inherent advantages of quick break and make, high contact pressure at the moment of closure, wiping action, and a large and definite contact gap. The movable contact arm of the relay is pivoted on a compensating bimetal element. Changes in the ambient temperature affect both the operating bimetal and the compensating bimetal, deflecting both so as to cancel the effect of ambient temperature on the relay operating time.





THERMAL TIME DELAY RELAY SELECTION CHART

Relay Series	Time Delay Range Seconds	Delay * Toler- ances @ 250C	Contact Form	Contact Rating (non inductive)	Reset Time (Instantaneous)	Life (Normal Operation)	Special Features	Price Range
200	5 to 180	± 25%	SPDT	115VAC 3 Amps 28VDC 2 Amps	7 to 45 seconds according to time delay	In excess of 250,000 operations	"Snap action" avoids contact chatter - economical temperature compensated.	\$3.00 to \$7.50
500	3 to 150	± 25%	SPST	115VAC 2 to 60 seconds according 28VDC 2 Amps to time delay		In excess of 100,000 operations	Spring loaded for high contact pressure - glass enclosed - fast reset.	\$2.50 to \$7.50
W	5 to 180	± 25%	SPDT or SPST	115VAC 3 Amps 28VDC 2 Amps	10 to 60 seconds according to time delay	In excess of 100,000 operations	"Snap action" contacts for high contact pressure- economical for replacements.	\$3.00 to \$7.50
S	3 to 120	± 25%	SPDT	115VAC 3 Amps 28VDC 1 Amp	5 to 60 seconds according to time delay	In excess of 100,000 operations	For military specifications. Vibration - 5 to 55 cps.	\$6.00 to \$12.50
Н	3 to 150	± 15%	SPST	115VAC 3 Amps 28VDC 1 Amp	2 to 60 seconds according to time delay	3 to 90 Sec. over 100,000 over 90 Sec. 10,000 opns.	For military applications. Vibration 55–500 cps	\$6.00 to \$12.50

Standard input voltages on the above relays — 6.3, 26.5 and 115AC or DC — others available. * 3 to 10 seconds ± 2 seconds.

SERIES TB TIME DELAY RELAYS								
For control switching applications		Inexpensive \$ 1.50 to \$ 5.00 range						
Time delays 2 to 120 seconds		Ambient compensated — if required						
Available at any input voltage		Solderless connection						
"Snapper" contact form SPST or SPDT		Mounting bracket or special brackets available						
ORDERING INFORMATION								

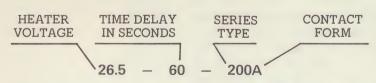
The above Series Time Delay Relays may be ordered in the following manner.

Contact Form

A = Normally Open B = Normally Closed

C = SPDT

Additional information available upon request.





RELAY SPECIALTIES INC. 3 GODWIN AVENUE, FAIR LAWN, N.J. 07410

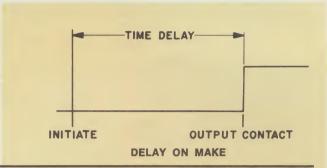
solid state timing devices

DESCRIPTION: Illustrated is the most complete selection of Solid State Timing Devices available. They represent low cost relays, fixed and adjustable, open construction, panel plug-in, direct dial, on-off recycling and on Delay, off Delay and Single Shot timing devices. These relays utilize Solid State components for the timing circuit with an electromagnetic relay for Double Pole Double Throw load switching. Complete Solid State timing and switching circuits are available in one package. The TER and TIR Series relays are Underwriter's Laboratory approved.

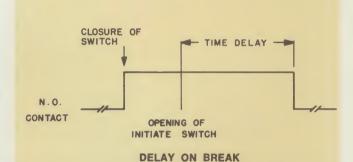
TRANSISTORIZED TIMERS - SYRACUSE ELECTRONICS CORPORATION

modes of operation:

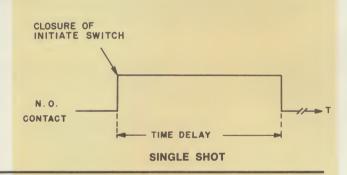
A. Delay on Make: Upon application of power to the input terminals the time delay is initiated. At the end of the time delay period, the output contacts transfer. Reset is accomplished by removal of input power.



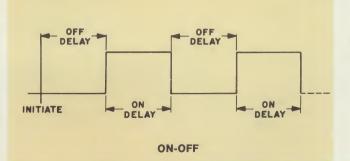
B. Delay on Break: Power is applied at all times. Upon closure of a normally open initiate switch, the output contacts immediately transfer and remain in this position if no further action is taken. Immediately upon opening the initiate switch, the time delay begins. At the end of the preset time delay, the output reverts to its original position—unit is now ready for the next cycle.



C. Single Shot: Power is applied to the input at all times. Initiation is accomplished by a momentary or maintained closure of a normally open switch. When unit is initiated, the output immediately transfers. After the set delay the output returns to its original position.



D. On-Off: With the application of power to the input terminals, the self-cycling on-off time delay is initiated. At the end of the first pre-set delay the output contacts transfer from their normal off position to the energized on position, at which time the on delay is initiated. At the conclusion of the on delay the output contacts return to their original off position. At this point the off delay is reinitiated and the cycle repeats. This on-off operation will continue as long as power is applied to the input. Upon removal of power during any portion of the cycle, the control will be reset to zero off time.





TRANSISTORIZED TIMERS — SYRACUSE ELECTRONICS CORPORATION										
MODEL	MODE OF OPERATION	TIME DELAY RANGES (SECONDS)	REPEAT ACCURACY ±,%	TYPICAL RESET TIME (MILLI- SECOND)	SETTING ACCURACY ±,%	OUTPUT RATING (AMPERES)		LIFE EXPECTANCY MILLIONS OF OPERATIONS	APPROX. SIZE L" x W" x H"	NOMINAL PRICE RANGE
TIR U.L.	DELAY ON MAKE	.1 TO 180	±7%	100	NOT APPLICABLE	10	DPDT (RELAY)	5	2 x 1% x 2	\$7 TO \$11
TAR	DELAY ON MAKE	.1 TO 180	7	100	± 50%	10	DPDT (RELAY)	5	2 x 17/8 x 21/6	\$10 TO \$13
TLR	DELAY ON MAKE	.1 TO 480	5	100	10	10	DPDT (RELAY)	10	2 x 1½ x 4	\$15 TO \$20
TER U.L.	DELAY ON MAKE	.1 TO 480	2	100	10	10	DPDT (RELAY)	10	2 x 1½ x 4	\$20 TO \$28
PTR	DELAY ON MAKE	.25 TO 480	1	150	5 OF SET POINT	10	DPDT (RELAY)	10	5% x 3¾ x 4¾	\$80 TO \$110
PTS	DELAY ON MAKE	.1 TO 480	1	150	5 OF SET POINT	1	SPST N. O. (SOLID STATE)	100	5% x 3¾ x 4¾	\$80 TO \$110
DLR	DELAY ON BREAK	.1 TO 480	5	100	10	10	SPDT (RELAY)	10	2 x 1½ x 4	\$15 TO \$20
DDR	DELAY ON BREAK	.1 TO 480	2 .	100	10	10	SPDT (RELAY)	10	2 x 1½ x 4	\$20 TO \$28
PDR	DELAY ON BREAK	.25 TO 480	1 .	50	5 OF SET POINT	10	DPDT (RELAY)	10	5% x 3¾ x 4¾	\$80 TO \$110
PDS	DELAY ON BREAK	.1 TO 480	1	40	5 OF SET POINT	1	SPST N. O. (SOLID STATE)	100	5% x 33/4 x 43/8	\$80 TO \$110
TSR	SINGLE SHOT	.1 TO 480	2	50	10	10	SPDT (RELAY)	10	2 x 1½ x 4	\$25 TO \$35
PSR	SINGLE SHOT	.25 TO 480	1	50	5 OF SET POINT	10	SPDT (RELAY)	10	5% x 3¾ x 43/8	\$80 TO \$110
PSS	SINGLE SHOT	.1 TO 480	1	40	5 OF SET POINT	1	SPST N. O. (SOLID STATE)	100	5% x 3¾ x 4¾	\$80 <u>TO</u> \$110
TFR	ON-OFF	.25 TO 360	2	100	10	5	DPDT (RELAY)	10	3½ x 2 x 2½	\$30 TO \$38
MTS	DELAY ON MAKE	.1 TO 360	3	40	15	2	SPST N. O. (SOLID STATE)	100	23/8 x 23/8 x 31/4	\$35 TO \$45
STR	DELAY ON MAKE	.1 TO 480	5	100	10	10	DPDT (RELAY)	5	3¾ x 3¾ x 25/8	\$13 TO \$18

ORDERING INFORMATION

Indicate:

1. Series

2. Input Voltage

3. Time Delay

TIR Series

non-adjustable -indicate time delay required.

Relays available with external potentiometer, fixed time

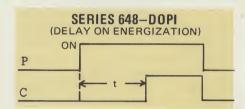
delay and lock shaft. 115 VAC relays in most series and time delay ranges available from stock. Additional information on any of the above relays available upon request.

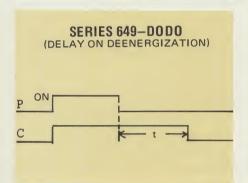
NOTES: 1. Custom Designs also available upon request. 2. Available input voltage: 24V AC, 48 V AC, 115V AC, 230V AC, 12V DC 24V DC, 28V DC, 48V DC, 115V DC. 3. Specifications and prices subject to change without notice.
4. P series relays available in 115V AC and 230V AC only.

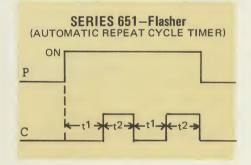
Time	Delay Secor	Range — nds
00	=	.10 to 1.0
01	=	.25 to 1.0
03	=	.25 to 5
05	=	.25 to 15
08	=	.25 to 30
11	=	.25 to 60
15	=	.25 to 120
20	=	.6 to 300
23	=	.6 to 480

electronic time delay relays

FROM STOCK - FROM STOCK - FROM STOCK SMALLEST AVAILABLE (AT PRICE) - ADJUSTABLE TIME DELAY FIXED TIME DELAY - ACCURATE - RELIABLE - FROM STOCK REPEATABLE - REPEATABLE - FROM STOCK







P = Operate Power C = Contact Position

Operation

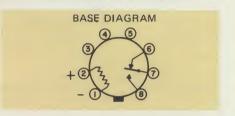
Upon application of operating power the timing interval is initiated. After the time delay, the load contacts transfer and remain transferred until operating power is removed. The unit is reset by removal of operating power.

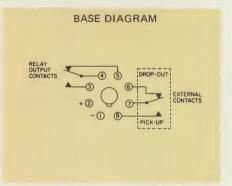
Operation

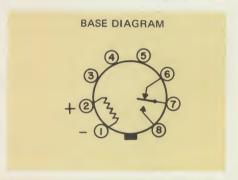
Power is applied at all times. Upon closure of a single pole double throw initiate switch, the output contacts immediately transfer and remain in this position if no further action is taken. Immediately upon returning the initiate switch to the normally closed position the Time Delay begins. At the end of the preset time delay the output reverts to its original position.

Operation

The application of operate power initiates the self-cycling on-off Time Delay. At the end of the first preset delay the output contacts transfer which starts the timing cycle. The output contacts continue to transfer at equal intervals as long as power is applied. When power is removed the contacts will transfer to the original position ready for a new operation.







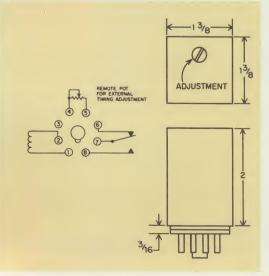
TO ORDER, INDICATE THE FOLLOWING:

- 1 Series
- 2. Input voltage Series 648--115VAC or 24VDC 649--115VAC or 24VDC 651--115VAC, 24VDC or 12VDC
- Time Delay
 Series 648 and 649
 1 = .1-10 seconds
 2 = 10 to 100 seconds
 3 = 60 to 180 seconds
 Series 651 adjustable from 10 to 100 flashes per minute.

EXAMPLE:

648-115A-2

Series 648-Input Voltage 115VAC-Adjustable Time Delay 10 to 100 seconds.









SERIES 648

SPECIFICATIONS

TIMING

Adjustable units available in 3 ranges

- 1. .1-10 seconds
- 2. 10 100 seconds
- 3. 60 180 seconds

Preset units available upon request in time periods from .1 to 180 seconds.

REPEAT TIMING ACCURACY

+3%

RESET TIME

50 Milliseconds

OPERATING VOLTAGE

115 VAC, 24 VDC +10%

220 VAC (with external resistor)

POWER REQUIRED

1.5 Watts maximum

OPERATING TEMPERATURE RANGE

-10° C to +60° C

STORAGE TEMPERATURE RANGE

-10° C to +85°C

OUTPUT

S.P.D.T. 3 amps resistive at 115VAC

20,000,000 Mechanical Operations

TRANSIENT PROTECTION

Will withstand twice rated voltage up to 5 Milliseconds.

CASE

8 Pin (Octal) plug in, blue high impact styrene case.

220 VAC Operation

To operate model Series 648-115VAC from 220 VAC connect a resistor in series with Terminal 2. This allows the Series 648 to perform normally. Resistor value will be supplied on request.

PRICE RANGE

\$9.50 - \$12.50

SERIES 649

SPECIFICATIONS

TIMING

Adjustable units available in 3 ranges

- 1. .1-10 seconds
- 2. 10 100 seconds
- 3. 60 180 seconds

Preset units available upon request in time periods from .1 to 180 seconds.

REPEAT TIMING ACCURACY

+ 3%

RESET TIME

50 Milliseconds

OPERATING VOLTAGE

115 VAC, 24 VDC + 10% 220 VAC (with external resistor)

POWER REQUIRED

1.5 Watts maximum

OPERATING TEMPERATURE RANGE

-10° C to +60° C

STORAGE TEMPERATURE RANGE

-10° C to +85° C

OUTPUT

S.P.D.T. 3 Amps resistive at 115 VAC

20,000,000 Mechanical Operations

TRANSIENT PROTECTION

Will withstand twice rated voltage up to 5 Milliseconds

CASE

8 Pin (Octal) plug in, blue high impact styrene case.

220 VAC Operation

To operate model Series 649-115 VAC from 220 VAC connect a resistor in series with Terminal 2. This allows the Series to perform normally.

PRICE RANGE

\$10.50 - \$14.50

SERIES 651

SPECIFICATIONS

TIMING

10 to 100 flashes per minute Duty cycle 50%

REPEAT TIMING ACCURACY

+ 3%

RESET TIME

50 Milliseconds

OPERATING VOLTAGE

115VAC, 24 VDC and 12VDC

POWER REQUIRED

1.5 Watts maximum

OPERATING TEMPERATURE RANGE

-10° C to +60° C

STORAGE TEMPERATURE RANGE

-10° C to +85° C

OUTPUT

S.P.D.T. 3 Amps resistive at 115VAC

20,000,000 Mechanical Operations

TRANSIENT PROTECTION

Will withstand twice rated voltage up to 5 Milliseconds.

CASE

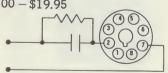
8 Pin (Octal) plug in, blue high impact styrene case.

220 VAC Operation

To operate model Series 651-115VAC from 220 VAC connect a resistor in series with Terminal 2. This allows the Series to perform normally.

PRICE RANGE

\$16.00 - \$19.95



220 VAC Operation, Models 648/649/651



RELAY SPECIALTIES INC. 3 GODWIN AVENUE, FAIR LAWN, N.J. 07410

SELECTED MILITARY DESIGNS



MODEL 262



MODEL 266



MODEL 274



MODEL 290



MODEL 296

MODEL 262 — Standard pneumatic replacement offering less power consumption, reduced voltage transients mounting in any position, delay on energization or delay on drop out and adjustable timing range to 180 seconds or smaller increments thereof. Operates from 18 to 32 VDC. Vibration 5 to 2000 cps at 10g. Price Range - \$80 to \$40.

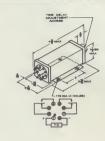
MODEL 266 — Universal military delay on pull in available in four mounting styles, with an internal relay output and delays from 25 milliseconds to 300 seconds available in 3 ranges. Operating voltage is 18 to 32 VDC with maximum current of 75 MA. Operating temperature -55°C to +85°C. Overall timing variation ±10% and repeatability of +1% -2%. Reset time 5 milliseconds maximum. Contacts are DPDT at 2 amps resistive-continuous duty. Transient protected and available with internal, remote or fixed adjustments. Vibration 5 to 2000 cps at 10g. Price Range - \$70 to \$50.

MODEL 274 — Solid state high current intervalometer employs a high power transistor as the output switch. Delivers output pulses of 2,3,4 or 5 pulses per second. Duration of output pulse is 100 milliseconds ±10%. Operating voltage - 28VDC. The unit is hermetically sealed and encapsulated with a standard MS connector. Vibration 5 to 2000 cps at 10g. Price range -\$140 to \$100.

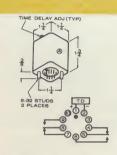
MODEL 290 — A delay on pull-in time delay relay meets requirements of MIL-STD-242 Part # 1407.33. Operating voltage 18 to 31 VDC. Fixed time delays from 50 milliseconds to 300 seconds. Contacts are DPDT. Vibration 10 to 2000 cps at 20g. Hermetically sealed. Also available as an adjustable unit. Price range - \$80 to \$40.

MODEL 296 — Operates on energization. Operating voltage is 22 - 32 VDC. Has bracket for easy mounting. Time delay from .1 to 300 seconds preset or adjustable with accuracies of 2.5%. SPDT. Operates over ambient temperature of -55°C to +125°C. Vibration 2000 cps at 20g. Life 100,000 operations minimum. Complies with applicable military specifications. Price range - \$65 to \$40.

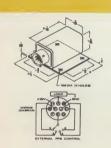
THESE DESIGNS REPRESENT ONLY A PARTIAL OF THE MANY TYPES AVAILABLE. SEND US YOUR REQUIREMENTS AND OR MODIFICATION REQUESTS AND WE WILL RESPOND PROMPTLY WITH AN ENGINEERING REPLY AND QUOTATION.



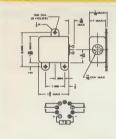
WIRING DIAGRAM 262



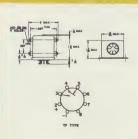
WIRING DIAGRAM 266



WIRING DIAGRAM 274



WIRING DIAGRAM 290



WIRING DIAGRAM 296

RELAY SPECIALTIES, INC., FAIR LAWN, NEW JERSEY Specialists in Electronic and Thermal Time Delay Relays

SELECTED MILITARY DESIGNS



MODEL 306



MODEL 323



MODEL 326



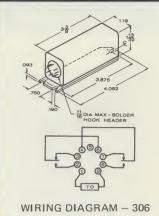
MODEL 330

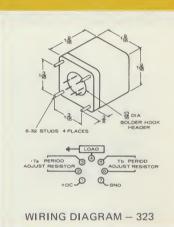
MODEL 306 - A 400 cps Time Delay Relay drawing a maximum of 80 miliamps at 29 VAC. Supply tolerances may vary +15% with little effect on the time delay period. Delay on Pull-In with any fixed range from 50 milliseconds to 300 seconds. Slimline construction that is completely encapsulated inside a steel can. The relay portion qualifies under MIL-R-5757. Price range - \$90 to \$45.

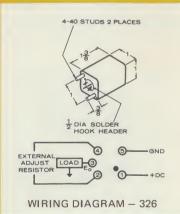
MODEL 323 - An all solid state flasher capable of externally controlling both "on" and "off" periods. Operating voltage is 24 to 32 VDC. The "on" and "off" periods are controlled by resistors across the terminals. Output current capacity is 2 amperes. Pulse to pulse timing variation is ±3%. Meets military requirements. Price range - \$80 to \$40.

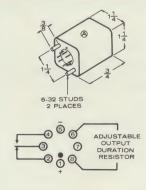
MODEL 326 - A completely solid state unit available with time delays on energization from 30 milliseconds to 300 seconds in 3 ranges. Operating voltage 24 to 32 VDC with a maximum current drain of 35 millamperes during a timing cycle plus the load current when the output switch is energized. Adjustment is made over the useful timing range by the addition of fixed or variable resistors across terminals 2 and 4. Operating temperature is -55°C to +85°C. Rated for continuous duty at 2 amp output. Recycle time is 1% of the preset time period. Recovery time is 3%. Meets all military requirements. Price range - \$80 to \$45.

MODEL 330 - Instantaneous transfer with a delay period and then a return to the "off" condition features this Remotely adjustable from 50 milliseconds to 300 seconds in 3 ranges. When power is applied the relay contacts transfer within 5 milliseconds, the delay period beginning at the time of transfer. After the pre-set delay, the relay contacts return to their normal position, regardless of whether the operating voltage is present or not. Should the operating voltage be removed during the timing cycle, the contacts would also immediately transfer to their de-energized position. Operating voltage is 18 to 32 VDC. Meets military requirements. Price range - \$85 to \$45.



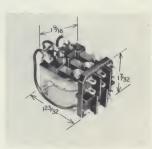




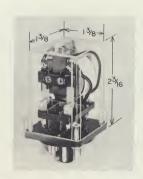


WIRING DIAGRAM - 330

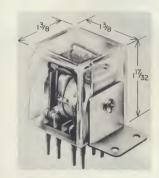
ELECTROMECHANICAL RELAYS



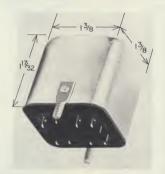
RE Price Range \$3.00 - \$7.00



REP Price Range \$5.00 - \$9.00



REKT Price Range \$4.00 - \$8.00



RED Price Range \$3.80 - \$7.80

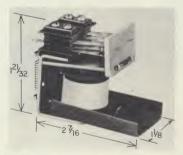


REM Price Range \$5.00 - \$9.00

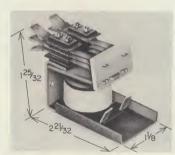


REH Price Range \$6.00 - \$10.00

General purpose relays designed for low cost, dependable switching of control circuits. Small, rugged, highly efficient with switching capacity to 10 amps and 3PDT contact configuration. Available with hermetically sealed, plastic or metal plug enclosures; metal dust covers for chassis mounting; solder lug, quick disconnect and printed circuits board terminals and any coil voltage.



RH Price Range \$2.65 - \$3.90



RHQ Price Range \$2.70 - \$4.05



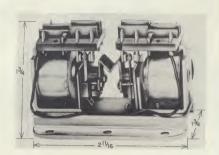
RHR Price Range \$2.95 - \$4.20

Specifically designed for maximum economy, feature 10 amp standard contacts (15 amperes available) and any combination of contact configurations through 9 PDT. This all-purpose component employs a nylon blade lifter that assures dependable operation. Also, metal and hermetically sealed enclosures and other quick disconnect (.110, .187 & .250) terminations are available.

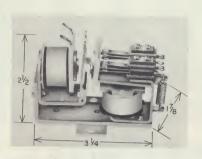


RHP Price Range \$4.65 - \$5.90

ELECTROMECHANICAL RELAYS



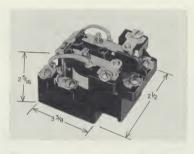
REL Price Range \$7.45 - \$12.75



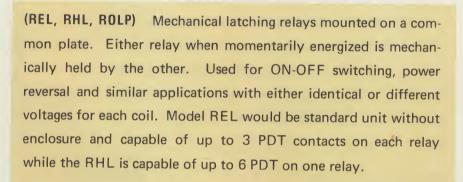
RHL Price Range \$7.00 - \$9.60

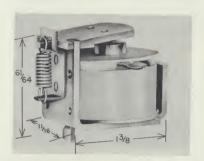


ROLP Price Range \$9.95 - \$16.15



PJ Price Range \$5.00 - \$7.05





RC Price Range \$3.10 - \$7.00

(PJ) A power relay engineered for extra long life at loads to 25 amperes with DPST or DPDT contact configuration. Operates from any voltage to 240 volts AC or DC. 110 volts AC in stock.

Actuators offering life of 5 million operations at



RM Price Range \$5.00 - \$9.40

PRICES VARY ACCORDING TO COIL VOLTAGE AND CONTACT ARRANGEMENTS.

strokes; solder lugs or quick disconnect terminals available.

forces of 2 to 5 ounces on RD and 4 to 20 ounces on RM at a stroke of .080" depending on duty cycle and AC or DC operation. Coil voltages to 110 VDC or 240 VAC. Higher forces at shorter

Quantity Discounts Available



guaranteed same day shipments on stock

other timing components

- Adjustable time delay relays for printed circuit board mounting.
 - Solid State AC Flasher/delay module
 - Solid State High Current intervalometer
 - Crystal can size time delay relay
 - Four hundred cycle AC time delay relay
 - Pulse duration time detection module
 - Summation timing module



T. Nelson, Syst Const. Box 1546 Poughkeepsie, NY 12603

RELAY SPECIALTIES INC.
3 GODWIN AVENUE, FAIR LAWN, N.J. 07410

BULK RATE
U.S. POSTAGE
PAID
FAIR LAWN, N.J.
PERMIT NO. 66

All questions in regard to any of the relays in this catalog can be answered by writing or telephoning (Area Code 201 791–3208). Your inquiry will receive our prompt attention.

PRINTED IN U.S.A. GC25 - 4/68